

# CONTENTS

## NUMBER 1

C. L. ZENG and W. T. WU	1	Corrosion of Ni-Ti alloys in the molten (Li,K) <sub>2</sub> CO <sub>3</sub> eutectic mixture
Y. ZUO, H. WANG, J. ZHAO and J. XIONG	13	The effects of some anions on metastable pitting of 316L stainless steel
Y. ZUO, H. WANG and J. XIONG	25	The aspect ratio of surface grooves and metastable pitting of stainless steel
H. H. HASSAN, S. S. ABD EL REHIM and N. F. MOHAMED	37	Role of ClO <sub>4</sub> <sup>-</sup> in breakdown of tin passivity in NaOH solutions
P. E. ALVAREZ, S. B. RIBOTTA, M. E. FOLQUER, C. A. GERVASI and J. R. VILCHE	49	Potentiodynamic behaviour of tin in different buffer solutions
X. ZHU and T. LEI	67	Characteristics and formation of corrosion product films of 70Cu-30Ni alloy in seawater
W. MORRIS, A. VICO, M. VAZQUEZ and S. R. DE SANCHEZ	81	Corrosion of reinforcing steel evaluated by means of concrete resistivity measurements
T. HONG, Y. H. SUN and W. P. JEPSON	101	Study on corrosion inhibitor in large pipelines under multiphase flow using EIS
P. PÉREZ, F. J. PÉREZ, C. GÓMEZ and P. ADEVA	113	Oxidation behaviour of an austenitic Fe-30Mn-5Al-0.5C alloy
M. C. GARCIA-ALONSO, G. MACCHI, C. BRUGNONI and M. F. STROOSNIJDER	129	Electrochemical release testing of a stainless steel in a glucose solution using thin layer activation
A. AFSETH, J. H. NORDLIEN, G. M. SCAMANS and K. NISANCIOGLU	145	Effect of heat treatment on electrochemical behaviour of aluminium alloy AA3005
N. XU, L. ZHAO, C. DING, C. ZHANG, R. LI and Q. ZHONG	163	Laboratory observation of dew formation at an early stage of atmospheric corrosion of metals
H. MA, Y. BERTHIER and P. MARCUS	171	NH <sub>3</sub> probing of the surface acidity of passive films on chromium
V. GUILLAUMIN and D. LANDOLT	179	Effect of dispersion agent on the degradation of a water borne paint on steel studied by scanning acoustic microscopy and impedance
J. ABELLÀ, I. BALACHOV, D. D. MACDONALD and P. J. MILLET	191	Transport processes in steam generator crevices III. Experimental results
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>

## NUMBER 2

R. A. RAPP	207	Preface
Y. KAWAHARA	209	Hot corrosion of materials: a fluxing mechanism?
T. ISHITSUKA and K. NOSE	223	High temperature corrosion mechanisms and effect of alloying elements for materials used in waste incineration environment
N. OTSUKA	247	Stability of protective oxide films in waste incineration environment—solubility measurement of oxides in molten chlorides
H. HABAZAKI, H. MITSUI, K. ITO, K. ASAMI, K. HASHIMOTO and S. MROWEC	265	Effects of fuel impurities on the fireside corrosion of boiler tubes in advanced power generating systems—A thermodynamic calculation of deposit chemistry
M. SCHÜTZE, G. SCHUMACHER, F. DETTENWANGER, U. HORNHAUER, E. RICHTER, E. WIESER and W. MÖLLER	285	Roles of aluminium and chromium in sulfidation and oxidation of sputter-deposited Al- and Cr-refractory metal alloys
M. J. GRAHAM and R. J. HUSSEY	303	The halogen effect in the oxidation of intermetallic titanium aluminides
K. ASAMI, T. MORIYA, K. HASHIMOTO and T. MASUMOTO	319	Characterization and growth of oxide films
D. J. YOUNG and B. GLEESON	331	Roles of temperature and humidity in the oxidation of sputter-deposited Cu-Ta alloys in air
	345	Alloy phase transformations driven by high temperature corrosion processes

T. GOTO, H. HOMMA and T. HIRAI	359	Effect of oxygen partial pressure on the high-temperature oxidation of CVD SiC
K. HASHIMOTO, M. YAMASAKI, S. MEGURO, T. SASAKI, H. KATAGIRI, K. IZUMIYA, N. KUMAGAI, H. HABAZAKI, E. AKIYAMA and K. ASAMI	371	Materials for global carbon dioxide recycling
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>
<b>NUMBER 3</b>		
<b>Letter</b>		
C. SIVA KUMAR, V. SHANKAR RAO, V. S. RAJA, A. K. SHARMA and S. M. MAYANNA	387	Corrosion behaviour of solar reflector coatings on AA 2024T3 - an electrochemical impedance spectroscopy study
<b>Papers</b>		
D. J. BLACKWOOD and S. K. M. CHOOI	395	Stability of protective oxide films formed on a porous titanium
A. T. YOKOBORI JR., Y. CHINDA, T. NEMOTO, K. SATOH and T. YAMADA	407	The characteristics of hydrogen diffusion and concentration around a crack tip concerned with hydrogen embrittlement
A. KRATSCHEMER, I. ODNEVALL WALLINDER and C. LEYGRAF	425	The evolution of outdoor copper patina
M. J. CARMEZIM, A. M. SIMÕES, M. O. FIGUEIREDO and M. DA CUNHA BELO	451	Electrochemical behaviour of thermally treated Cr-oxide films deposited on stainless steel
R. S. GONCALVES, D. S. AZAMBUJA and A. M. S. LUCHO	467	Electrochemical studies of propargyl alcohol as corrosion inhibitor for nickel, copper, and copper/nickel (55/45) alloy
C. PÉREZ, A. COLLAZO, M. IZQUIERDO, P. MERINO and X. R. NÓVOA	481	Comparative study between galvanised steel and three duplex systems submitted to a weathering cyclic test
D. GHIDAoui, S. B. LYON, G. E. THOMPSON and J. WALTON	501	Oxide formation during etching of gallium arsenide
M. A. ARENAS, A. CONDE and J. J. DE DAMBORENEA	511	Cerium: a suitable green corrosion inhibitor for tinplate
V. SHANKAR RAO, R. G. BALIGIDAD and V. S. RAJA	521	Effect of carbon on corrosion behaviour of Fe <sub>3</sub> Al intermetallics in 0.5 N sulphuric acid
R. SUBRAMANIAN and V. LAKSHMINARAYANAN	535	Effect of adsorption of some azoles on copper passivation in alkaline medium
A. K. NEUFELD, I. S. COLE, A. M. BOND and S. A. FURMAN	555	The initiation mechanism of corrosion of zinc by sodium chloride particle deposition
M. LAGRENÉE, B. MERNARI, M. BOUANIS, M. TRAINSEL and F. BENTISS	573	Study of the mechanism and inhibiting efficiency of 3,5-bis(4-methylthiophenyl)-4H-1,2,4-triazole on mild steel corrosion in acidic media
Y. MIYATA and S. ASAKURA	589	Oxygen reduction reaction at rust free iron surface in neutral unbuffered chloride solutions
H. INOUE, K. SUGAHARA, A. YAMAMOTO and H. TSUBAKINO	603	Corrosion rate of magnesium and its alloys in buffered chloride solutions
K. FUSHIMI, T. YAMAMURO and M. SEO	611	Hydrogen generation from a single crystal magnetite coupled galvanically with a carbon steel in sulfate solution
<b>Short Communication</b>		
J. M. BASTIDAS, C. L. TORRES, E. CANO and J. L. POLO	625	Influence of molybdenum on passivation of polarised stainless steels in a chloride environment
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>
<b>NUMBER 4</b>		
J. S. KIM, W. H. A. PEELN, K. HEMMES and R. C. MAKKUS	635	Effect of alloying elements on the contact resistance and the passivation behaviour of stainless steels
S. VILLAIN, M. H. PISCHEDDA, E. NIGRELLI, F. GODIART and J. R. GAVARRI	657	Degradation mechanism of electrodes subjected to alternating potentials: modeling and protection

A. U. LEUENBERGER-MINGER,  
B. BUCHMANN, M. FALLER,  
P. RICHNER and M. ZOBELI  
Z. LI, F. GAN and X. MAO

Z. QUAN, S. CHEN, Y. LI and  
X. CUI  
M. ABDALLAH

P. L. BONORA, M. ANDREI,  
A. ELIEZER and E. M. GUTMAN  
L. IGLESIAS-RUBIANES,  
P. SKELDON, G. E. THOMPSON,  
H. HABAZAKI and K. SHIMIZU  
K. H. W. SEAH, M. KRISHNA,  
V. T. VIJAYALAKSHMI and J. UCHIL  
M. LEGRAND, B. DIAWARA,  
J.-J. LEGENDRE and P. MARCUS  
M. WADSAK, T. AASTRUP,  
I. ODNEVALL WALLINDER,  
C. LEYGRAF and M. SCHREINER  
S. A. ABD EL-MAKSOUH

M. A. M. IBRAHIM, S. F. KORABLOV  
and M. YOSHIMURA  
M. J. DANIELSON

X. Y. ZHOU, S. N. LVQV, X. J. WEI,  
L. G. BENNING and  
D. D. MACDONALD  
S.-Y. ZHANG, Y.-F. DING, S.-J. LI,  
X.-W. LUO and W.-F. ZHOU  
K. ARAMAKI

M. MORI, K. MIURA, T. SASAKI  
and T. OHTSUKA

#### Letter

G. HORÁNYI and E. KÁLMÁN

#### Papers

Q. ZHONG

K. H. W. SEAH, M. KRISHNA,  
V. T. VIJAYALAKSHMI and J. UCHIL  
P. ERNST and R. C. NEWMAN

P. ERNST and R. C. NEWMAN

S. HIROMOTO, K. NODA  
and T. HANAWA  
A. VEAWAB and A. AROONWILAS

L. L. DUDA

B. TRACHLI, M. KEDDAM,  
H. TAKENOUTI and A. SRHIRI  
D. HAMM, C.-O. A. OLSSON  
and D. LANDOLT

675 Dose-response functions for weathering steel, copper and zinc  
obtained from a four-year exposure programme in Switzerland

689 A study on cathodic protection against crevice corrosion in  
dilute NaCl solutions

703 Adsorption behaviour of Schiff base and corrosion protection of  
resulting films to copper substrate

717 Rhodanine azosulpha drugs as corrosion inhibitors for corro-  
sion of 304 stainless steel in hydrochloric acid solution

729 Corrosion behaviour of stressed magnesium alloys

751 Transient anodic oxidation of an Al-W alloy: effects of current  
ratio

761 Effects of temperature and reinforcement content on corrosion  
characteristics of LM13/albite composites

773 Three-dimensional modelling of selective dissolution and passiva-  
tion of iron-chromium alloys

791 Multianalytical in situ investigation of the initial atmospheric  
corrosion of bronze

803 Studies on the effect of pyranocoumarin derivatives on the  
corrosion of iron in 0.5 M HCl

815 Corrosion of stainless steel coated with TiN, (TiAl)N and CrN  
in aqueous environments

829 Use of the Devanathan-Stachurski cell to measure hydrogen  
permeation in aluminum alloys

841 Quantitative evaluation of general corrosion of Type 304  
stainless steel in subcritical and supercritical aqueous solutions  
via electrochemical noise analysis

861 Effect of polymeric structure on the corrosion protection of  
epoxy coatings

871 Synergistic inhibition of zinc corrosion in 0.5 M NaCl by  
combination of cerium(III) chloride and sodium silicate

887 Corrosion of tin alloys in sulfuric and nitric acids

I Corrosion diary

III Keywords for *Corrosion Science*

#### NUMBER 5

899 Novel application of radiotracer techniques for corrosion studies  
of zinc and aluminium in acidic medium

909 Study of corrosion behaviour of mild steel and copper in thin  
film salt solution using the wire beam electrode

917 Corrosion behaviour of garnet particulate reinforced LM13 Al  
alloy MMCs

927 Pit growth studies in stainless steel foils. I. Introduction and pit  
growth kinetics

943 Pit growth studies in stainless steel foils. II. Effect of  
temperature, chloride concentration and sulphate addition

955 Development of electrolytic cell with cell-culture for metallic  
biomaterials

967 Identification of oxidizing agents in aqueous amine-CO<sub>2</sub>  
systems using a mechanistic corrosion model

989 Kinetics of the dissolution of copper in aqueous alkaline 2,2'-  
dipyridyl solutions

997 Protective effect of electropolymerized 3-amino 1,2,4-triazole  
towards corrosion of copper in 0.5 M NaCl

1009 Effect of chromium content and sweep rate on passive film  
growth on iron-chromium alloys studied by EQCM and XPS

- X. SHI, R. AVCI and Z. LEWANDOWSKI
- H. HABAZAKI, K. SHIMIZU, S. NAGATA, P. SKELDON, G. E. THOMPSON and G. C. WOOD
- M. EDWARDS, L. HIDMI and D. GLADWELL
- T. ISHIKAWA, M. KUMAGAI, A. YASUKAWA, K. KANDORI, T. NAKAYAMA and F. YUSE
- J. H. PARK, G. D. LEE, A. NISHIKATA and T. TSURU
- A. A. EL-MONEIM, A. GEBERT, F. SCHNEIDER, O. GUTFLEISCH and L. SCHULTZ
- V. V. DOILNITSYNA
- Y. LIU, P. SKELDON, G. E. THOMPSON, H. HABAZAKI and K. SHIMIZU
- Short Communication**
- Z. SZKLARSKA-SMIALOWSKA
- Discussions**
- M. M. SCHERER, J. C. WESTALL and P. G. TRATNYEK
- M. S. ODZIEMKOWSKI, W. JĘDRAL and P. M. L. BONIN
- D. TANGUY, B. BAYLE, R. DIF and Th. MAGNIN
- H. MA, G. LI, S. CHEN, S. ZHAO and X. CHENG
- A. PARDO, E. OTERO, M. C. MERINO, M. D. LÓPEZ, M. VÁZQUEZ and P. AGUDO
- W. DURNIE, R. DE MARCO, A. JEFFERSON and B. KINSELLA
- J. L. MORA-MENDOZA and S. TURGOOSE
- Q. ZHONG
- N. HUYNH, S. E. BOTTLE, T. NOTOYA, A. TRUEMAN, B. HINTON and D. P. SCHWEINSBERG
- Y.-J. TAN, S. BAILEY and B. KINSELLA
- J. R. VILCHE, E. C. BUCHARSKY and C. A. GIUDICE
- 1027 Electrochemistry of passive metals modified by manganese oxides deposited by *Leptothrix discophora*: two-step model verified by ToF-SIMS
- 1047 Ionic transport in amorphous anodic titania stabilised by incorporation of silicon species
- 1057 Phosphate inhibition of soluble copper corrosion by-product release
- 1073 Influences of metal ions on the formation of  $\gamma$ -FeOOH and magnetite rusts
- 1087 Anticorrosive behavior of hydroxyapatite as an environmentally friendly pigment
- 1097 Grain growth effects on the corrosion behavior of nanocrystalline NdFeB magnets
- 1113 General diffusion-kinetic model of metallic oxidation
- 1133 Anodic film growth on an Al-21at.%Mg alloy
- 1143 Mechanism of pit nucleation by electrical breakdown of the passive film
- 1151 Discussion on "Electrochemical and Raman spectroscopic studies of the influence of chlorinated solvents on the corrosion behaviour of iron in borate buffer and in simulated groundwater" [*Corrosion Science* 42 (2000) 1921-1939]
- 1159 Response to discussion on "Electrochemical and Raman spectroscopic studies of the influence of chlorinated solvents on the corrosion behaviour of iron in borate buffer and in simulated groundwater" [*Corrosion Science* 42 (2000) 1921-1939]
- I Corrosion diary
- III Keywords for *Corrosion Science*
- NUMBER 6**
- 1163 Hydrogen effects during IGSCC of pure Al-5Mg alloy in NaCl media
- 1177 Impedance investigation of the anodic iron dissolution in perchloric acid solution
- 1193 The influence of Cr addition on the corrosion resistance of  $\text{Fe}_{73.5}\text{Si}_{13.5}\text{B}_9\text{Nb}_3\text{Cu}_1$  metallic glass in marine environments
- 1213 Harmonic analysis of carbon dioxide corrosion
- 1223  $\text{Fe}_3\text{C}$  influence on the corrosion rate of mild steel in aqueous  $\text{CO}_2$  systems under turbulent flow conditions
- 1247 A novel electrochemical testing method and its use in the investigation of the self-repairing ability of temporarily protective oil coating
- 1257 Studies on alkyl esters of carboxybenzotriazole as inhibitors for copper corrosion
- 1277 Studying the formation process of chromate conversion coatings on aluminium using continuous electrochemical noise resistance measurements
- 1287 Application of EIS and SEM to evaluate the influence of pigment shape and content in ZRP formulations on the corrosion prevention of naval steel

L. W. TSAY, W. C. LEE, W. C. LUU and J. K. WU	1311	Effect of hydrogen environment on the notched tensile properties of T-250 maraging steel annealed by laser treatment
K. AZUMI, K. IOKIBE, T. UENO and M. SEO	1329	Application of AC resistmetry to monitoring of localized corrosion of iron
R. NISHIMURA, I. MUSALAM and Y. MAEDA	1343	The effect of sensitizing temperature on stress corrosion cracking of type 316 austenitic stainless steel in hydrochloric acid solution
K. ARAMAKI	1361	Cerium(III) chloride and sodium octylthiopropionate as an effective inhibitor mixture for zinc corrosion in 0.5 M NaCl
K. ARAMAKI	1375	Preparation of chromate-free, self-healing polymer films containing sodium silicate on zinc pretreated in a cerium(III) nitrate solution for preventing zinc corrosion at scratches in 0.5 M NaCl
A. K. NEUFELD, I. S. COLE, A. BOND and S. A. FURMAN	1391	Corrigendum to "The initiation mechanism of corrosion of zinc by sodium chloride particle deposition" [Corrosion Science 44 (2002) 555-572]
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>
<b>NUMBER 7</b>		
E. McCafferty	1393	Oxide networks, graph theory, and the passivity of binary alloys
V. A. C. HAANAPPEL, Y. P. JACOB and M. F. STROOSNIJDER	1411	The use of thin layer activation in high-temperature cyclic oxidation studies
M. VANKEERBERGHE and D. D. MACDONALD	1425	Predicting crack growth rate vs. temperature behaviour of Type 304 stainless steel in dilute sulphuric acid solutions
D. HAMM, K. OGLE, C.-O. A. OLSSON, S. WEBER and D. LANDOLT	1443	Passivation of Fe-Cr alloys studied with ICP-AES and EQCM
Y. S. LI, Y. NIU, F. GESMUNDO and F. H. WANG	1457	Grain size effects on the oxidation of two-phase Cu-Fe alloys
M. SAITOU, W. OSHIKAWA and T. ISHIKAWA	1469	Anomalous dimension in pitting corrosion of SUS304 in a NaCl solution
V. VIGNAL, C. VALOT, R. OLTRA, M. VERNEAU and L. COUDREUSE	1477	Analogy between the effects of a mechanical and chemical perturbation on the conductivity of passive films
L. BERTOLINI, M. GASTALDI, M. PEDEFERRI and E. REDAELLI	1497	Prevention of steel corrosion in concrete exposed to seawater with submerged sacrificial anodes
E. SOSA, R. CABRERA-SIERRA, I. GARCÍA, M. T. OROPEZA and I. GONZÁLEZ	1515	The role of different surface damages in corrosion process in alkaline sour media
F. FERRER, T. FAURE, J. GOUDIAKAS and E. ANDRÉS	1529	Acoustic emission study of active-passive transitions during carbon steel erosion-corrosion in concentrated sulfuric acid
E. JUZELIUNAS, K. LEINARTAS, M. SAMULEVICIENE, P. MIECINSKAS, R. JUSKENAS and A. SUDAVICIUS	1541	Magnetron sputtered Au-Pd-In alloys: microgravimetric and electrochemical characterisation in simulated physiological solutions
A. CONDE and J. J. DE DAMBORENEA	1555	Electrochemical impedance spectroscopy for studying the degradation of enamel coatings
R. HAUGSRUD	1569	On the influence of sol-gel derived CeO <sub>2</sub> coatings on high-temperature oxidation of Co, Ni and Cu
B. MÜLLER	1583	Corrosion inhibition of aluminium and zinc pigments by saccharides
E. GALVANETTO, F. P. GALLIANO, A. FOSSATI and F. BORGIOI	1593	Corrosion resistance properties of plasma nitrided Ti-6Al-4V alloy in hydrochloric acid solutions
R. L. DE ROSA, D. A. EARL and G. P. BIERWAGEN	1607	Statistical evaluation of EIS and ENM data collected for monitoring corrosion barrier properties of organic coatings on Al-2024-T3
K. ARAMAKI	1621	Self-healing mechanism of an organosiloxane polymer film containing sodium silicate and cerium(III) nitrate for corrosion of scratched zinc surface in 0.5 M NaCl
<b>Short Communication</b>		
M. UEDA and T. OHTSUKA	1633	Luminescence from band-gap photo-excitation of titanium anodic oxide films
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>

## NUMBER 8

- A. BELGHAZI, S. BOHM, 1639 Zinc runoff from organically coated galvanised architectural steel
- J. H. SULLIVAN and D. A. WORSLEY 1655 Degradation mechanism of long service life Ti/IrO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> oxide anodes in sulphuric acid
- J. M. HU, H. M. MENG, 1669 Adsorption and corrosion inhibitive properties of some organic molecules on iron electrode in sulfuric acid
- J. Q. ZHANG and C. N. CAO 1681 Charge trapping in bilayers of conducting polymers under open circuit conditions: a protection of conducting polymer films from spontaneous charging/discharging
- L. M. VRAČAR and D. M. DRAŽIĆ 1695 Uniformity of passive films formed on ferrite and martensite by different inorganic inhibitors
- J. DUMANSKA and K. MAKSYMIAK 1713 Fluoride induced corrosion of steel rebars in contact with alkaline solutions, cement slurry and concrete mortars
- W. S. LI and J. L. LUO 1737 Interpretation of the promoting effect of sulphate salt additives on the development of non-uniform pitted porous anodic Al<sub>2</sub>O<sub>3</sub> films in H<sub>2</sub>SO<sub>4</sub> electrolyte by a transport phenomenon analysis theory
- D. D. N. SINGH, R. GHOSH and 1755 The use of macroscopic modelling of intermetallic phases in aluminium alloys in the study of ferricyanide accelerated chromate conversion coatings
- B. K. SINGH 1783 Hydrogen transport and degradation of a commercial duplex stainless steel
- G. PATERMARAKIS and 1793 Influence of the alloy grain size on the oxidation behaviour of PM2000 alloy
- K. MOUSSOUTZANIS 1809 Adsorption of a bromine labeled carboxylic acid corrosion inhibitor on iron measured with EQCM, EIS and XPS
- L. JUFFES, A. E. HUGHES, 1825 Effects of molybdenum on the pitting of ferritic- and austenitic-stainless steels in bromide and chloride solutions
- S. FURMAN and P. J. K. PATERSON 1835 Behavior of intergranular corrosion of (011) tilt grain boundaries of pure copper bicrystals
- W. C. LUU, P. W. LIU and J. K. WU 1847 Bulk glassy Fe-Cr-Mo-C-B alloys with high corrosion resistance
- P. PÉREZ 1857 The influence of Co and Ga additions on the corrosion behavior of nanocrystalline NdFeB magnets
- P. KERN and D. LANDOLT 1875 Hydrogen embrittlement of commercial purity titanium
- M. KANEKO and H. S. ISAACS 1889 Molybdate/Al(III) composite films on steel and zinc-plated steel by chemical conversion
- H. MIYAMOTO, K. YOSHIMURA, 1 Corrosion diary
- T. MIMAKI and M. YAMASHITA, 11 Keywords for *Corrosion Science*
- S. J. PANG, T. ZHANG, K. ASAMI and A. INOUE
- A. A. EL-MONEIM, A. GEBERT, M. UHLEMANN, O. GUTFLEISCH and L. SCHULTZ
- C. L. BRIANT, Z. F. WANG and N. CHOLLOCOOP
- H. KONNO, K. NARUMI and H. HABAZAKI

## NUMBER 9

- B. BEVERSKOG, M. BOJINOV, 1901 A mixed-conduction model for oxide films on Fe, Cr and Fe-Cr alloys in high-temperature aqueous electrolytes—I. Comparison of the electrochemical behaviour at room temperature and at 200 °C
- A. ENGLUND, P. KINNUNEN, T. LAITINEN, K. MÄKELÄ, T. SAARIO and P. SIRKIA 1923 A mixed-conduction model for oxide films on Fe, Cr and Fe-Cr alloys in high-temperature aqueous electrolytes—II. Adaptation and justification of the model
- B. BEVERSKOG, M. BOJINOV, P. KINNUNEN, T. LAITINEN, K. MÄKELÄ and T. SAARIO 1941 Enrichment of alloying elements in anodized magnesium alloys
- F. A. BONILLA, A. BERKANI, P. SKELDON, G. E. THOMPSON, H. HABAZAKI, K. SHIMIZU, C. JOHN and K. STEVENS 1949 Influence of alloying on the passive behaviour of steels in bicarbonate medium
- V. A. ALVES and C. M. A. BRETT 1967 Oxidation behavior of titanium carbonitride based materials
- F. MONTEVERDE and A. BELLOSI 1983 Hydrogen embrittlement of weld metal of austenitic stainless steels
- C. PAN, Y. J. SU, W. Y. CHU, Z. B. LI, D. T. LIANG and L. J. QIAO 1995 Tryptophan as copper corrosion inhibitor in 0.5 M aerated sulfuric acid
- G. MORETTI and F. GUIDI

- H. C. LIN, K. M. LIN, C. S. LIN and T. M. OUYANG 2013 The corrosion behavior of Fe-based shape memory alloys
- Y. P. JACOB, V. A. C. HAANAPPEL, M. F. STROOSNIJDER, H. BUSCAIL, P. FIELTIZ and G. BORCHARDT 2027 The effect of gas composition on the isothermal oxidation behaviour of PM chromium
- E. E. ABD EL AAL 2041 Measurements of pitting corrosion currents of zinc in near neutral media
- T. A. TRUC, N. PEBÈRE, T. T. X. HANG, Y. HERVAUD and B. BOUTEVIN 2055 Study of the synergistic effect observed for the corrosion protection of a carbon steel by an association of phosphates
- V. T. NGALA, C. L. PAGE and M. M. PAGE 2073 Corrosion inhibitor systems for remedial treatment of reinforced concrete. Part 1: calcium nitrite
- L. MOURI, I. MABILLE, C. FIAUD and J. AMOUREUX 2089 Improvement of the corrosion resistance of a low carbon steel using a two step plasma treatment
- L. W. TSAY, W. C. LEE, R. K. SHIUE and J. K. WU 2101 Notch tensile properties of laser-surface-annealed 17-4 PH stainless steel in hydrogen-related environments
- J. M. ZHAO and Y. ZUO 2119 The effect of molybdate and dichromate anions on pit propagation of mild steel in bicarbonate solution containing  $\text{Cl}^-$
- X. ZHANG, W. HE, I. ODNEVALL WALLINDER, J. PAN and C. LEYGRAF 2131 Determination of instantaneous corrosion rates and runoff rates of copper from naturally patinated copper during continuous rain events
- E. ZHURAVLYOVA, L. IGLESIAS-RUBIANES, A. PAKES, P. SKELDON, G. E. THOMPSON, X. ZHOU, T. QUANCE, M. J. GRAHAM, H. HABAZAKI and K. SHIMIZU 2153 Oxygen evolution within barrier oxide films

## I Corrosion diary

III Keywords for *Corrosion Science*

## NUMBER 10

- A. PAKES, P. SKELDON, G. E. THOMPSON, S. MOISA, G. I. SPROULE and M. J. GRAHAM 2161 Anodic film growth on InP in sodium tungstate
- A. G. MUÑOZ, S. B. SAIDMAN and J. B. BESSONE 2171 Corrosion of an Al-Zn-In alloy in chloride media
- U. K. MUDALI, P. SHANKAR, S. NINGSHEN, R. K. DAYAL, H. S. KHATAK and B. RAJ 2183 On the pitting corrosion resistance of nitrogen alloyed cold worked austenitic stainless steels
- E. GUILMINOT, F. DALARD and C. DEGRIGNY 2199 Mechanism of iron corrosion in water-polyethylene glycol (PEG 400) mixtures
- S. E. ZIEMNIAK and M. HANSON 2209 Corrosion behavior of 304 stainless steel in high temperature, hydrogenated water
- P. DILLMANN, R. BALASUBRAMANIAM and G. BERANGER 2231 Characterization of protective rust on ancient Indian iron using microprobe analyses
- S. RAJENDRAN, S. M. REENKALA, N. ANTHONY and R. RAMARAJ 2243 Synergistic corrosion inhibition by the sodium dodecylsulphate- $\text{Zn}^{2+}$  system
- P. SZAKALOS, R. PETTERSSON and S. HERTZMAN 2253 An active corrosion mechanism for metal dusting on 304L stainless steel
- F. BENTISS, M. TRAISNEL, N. CHAIBI, B. MERNARI, H. VEZIN and M. LAGRENÉE 2271 2,5-Bis(*n*-methoxyphenyl)-1,3,4-oxadiazoles used as corrosion inhibitors in acidic media: correlation between inhibition efficiency and chemical structure
- D. ÖRNEK, T. K. WOOD, C. H. HSU and F. MANSFELD 2291 Corrosion control using regenerative biofilms (CCURB) on brass in different media
- I. O. WALLINDER, J. LU, S. BERTLING and C. LEYGRAF 2303 Release rates of chromium and nickel from 304 and 316 stainless steel during urban atmospheric exposure—a combined field and laboratory study
- A. AMADEH, B. PAHLEVANI and S. HESHMATI-MANESH 2321 Effects of rare earth metal addition on surface morphology and corrosion resistance of hot-dipped zinc coatings
- M. KAMAYA and N. TOTSUKA 2333 Influence of interaction between multiple cracks on stress corrosion crack propagation



A. SCHNEIDER	2353	Iron layer formation during cementite decomposition in carburising atmospheres
X. J. GUO, K. W. GAO, L. J. QIAO and W. Y. CHU	2367	The correspondence between susceptibility to SCC of brass and corrosion-induced tensile stress with various pH values
M. CHIBA and M. SEO	2379	Effects of dichromate treatment on mechanical properties of passivated single crystal iron (100) and (110) surfaces
H. BABA, T. KODAMA and Y. KATADA	2393	Role of nitrogen on the corrosion behavior of austenitic stainless steels
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>
<b>NUMBER 11</b>		
M. CASTELLOTE, C. ANDRADE and C. ALONSO	2409	Accelerated simultaneous determination of the chloride depassivation threshold and of the non-stationary diffusion coefficient values
J. J. S. RODRÍGUEZ, F. J. S. HERNÁNDEZ and J. E. G. GONZÁLEZ	2425	XRD and SEM studies of the layer of corrosion products for carbon steel in various different environments in the province of Las Palmas (The Canary Islands, Spain)
L. THAIR, U. K. MUDALI, N. BHUVANESWARAN, K. G. M. NAIR, R. ASOKAMANI and B. RAJ	2439	Nitrogen ion implantation and in vitro corrosion behavior of as-cast Ti-6Al-7Nb alloy
C. P. GARDINER and R. E. MELCHERS	2459	Corrosion of mild steel in porous media
M. H. RAS and P. C. PISTORIUS	2479	Possible mechanisms for the improvement by vanadium of the pitting corrosion resistance of 18% chromium ferritic stainless steel
A. AFSETH, J. H. NORDLIEN, G. M. SCAMANS and K. NISANCIOGLU	2491	Effect of thermo-mechanical processing on filiform corrosion of aluminium alloy AA3005
X. ZHANG, S. O. PEHKONEN, N. KOCHERGINSKY and G. A. ELLIS	2507	Copper corrosion in mildly alkaline water with the disinfectant monochloramine
A. AFSETH, J. H. NORDLIEN, G. M. SCAMANS and K. NISANCIOGLU	2529	Filiform corrosion of binary aluminium model alloys
A. AFSETH, J. H. NORDLIEN, G. M. SCAMANS and K. NISANCIOGLU	2543	Filiform corrosion of AA3005 aluminium analogue model alloys
J. KAWAKITA, T. FUKUSHIMA, S. KURODA and T. KODAMA	2561	Corrosion behaviour of HVOF sprayed SUS316L stainless steel in seawater
N. HUYNH, S. E. BOTTLE, T. NOTOYA and D. P. SCHWEINSBERG	2583	Inhibition of copper corrosion by coatings of alkyl esters of carboxybenzotriazole
J. J. S. RODRÍGUEZ, F. J. S. HERNÁNDEZ and J. E. G. GONZÁLEZ	2597	Mathematical and electro-chemical characterisation of the layer of corrosion products on carbon steel in various environments
C. E. CAICEDO-MARTÍNEZ, E. V. KOROLEVA, G. E. THOMPSON, P. SKELDON, K. SHIMIZU, G. HOELLRIGL, C. CAMPBELL and E. McALPINE	2611	Influence of impurities in aluminium on surface treatment
K. ARAMAKI	2621	Self-healing protective films prepared on zinc by treatments with cerium(III) nitrate and sodium phosphate
H. ASTEMAN, J.-E. SVENSSON and L.-G. JOHANSSON	2635	Oxidation of 310 steel in H <sub>2</sub> O/O <sub>2</sub> mixtures at 600 °C: the effect of water-vapour-enhanced chromium evaporation
<b>Short Communication</b>		
M. FORSYTH, C. M. FORSYTH, K. WILSON, T. BEHRING and G. B. DEACON	2651	ATR characterisation of synergistic corrosion inhibition of mild steel surfaces by cerium salicylate
	I	Corrosion diary
	III	Keywords for <i>Corrosion Science</i>



<b>NUMBER 12</b>	
B. LIU, Y. LI, H. LIN and C.-N. CAO	2657
C. P. GARDINER and R. E. MELCHERS	2665
I. BETOVA, M. BOJINOV, T. LAITINEN, K. MÄKELÄ, P. POHJANNE and T. SAARIO	2675
I. BETOVA, M. BOJINOV, T. LAITINEN, K. MÄKELÄ, P. POHJANNE and T. SAARIO	2699
Z. ASHITAKA, P. SKELDON, G. E. THOMPSON, K. SHIMIZU and H. HABAZAKI	2725
S. MATHIEU, C. RAPIN, J. HAZAN and P. STEINMETZ	2737
K. W. CHUNG, Y. T. KHO and K. B. KIM	2757
Z. QINGDONG and Z. ZHAO	2777
Q. QU, C. YAN, Y. WAN and C. CAO	2789
L. G. ANDIÓN, P. GARCÉS, R. LAPUENTE, J. L. VÁZQUEZ and F. CASES	2805
C.-J. PARK and H.-S. KWON	2817
M. G. ALVAREZ, S. A. FERNÁNDEZ and J. R. GALVELE	2831
H.-Y. LIOU, R.-I. HSIEH and W.-T. TSAI	2841
M. A. PAEZ, A. SANDOVAL, Y. SEPULVEDA, A. MONSALVE, P. SKELDON, G. E. THOMPSON and X. ZHOU	2857
<b>Short Communication</b>	
M. L. FREE	2865
	I
	III
XXIX	

## NUMBER 12

Effect of PVC on the diffusion behaviour of water through alkyd coatings

Corrosion of mild steel by coal and iron ore

The transpassive dissolution mechanism of highly alloyed stainless steels I. Experimental results and modelling procedure

The transpassive dissolution mechanism of highly alloyed stainless steels II. Effect of pH and solution anion on the kinetics

Enrichment behaviour of gallium in heat and surface treatments of Al-Ga foils

Corrosion behaviour of high pressure die-cast and semi-solid cast AZ91D alloys

Oxidation behavior of  $\text{Ni}_x\text{Fe}_{1-x}(\text{OH})_2$  in  $\text{Cl}^-$ -containing solution

Study of anti-contamination performance of temporarily protective oil coatings using wire beam electrode

Effects of NaCl and  $\text{SO}_2$  on the initial atmospheric corrosion of zinc

Corrosion behaviour at the interface of steel bars embedded in cement slurries. Effect of phenol polymer coatings

Effects of aging at 475 °C on corrosion properties of tungsten-containing duplex stainless steels

Effect of temperature on transgranular and intergranular stress corrosion crack velocity of Ag-Au alloys

Microstructure and stress corrosion cracking in simulated heat-affected zones of duplex stainless steels

Anodic oxidation of Al-Ag alloys

Understanding the effect of surfactant aggregation on corrosion inhibition of mild steel in acidic medium

Corrosion diary

Index for volume 44, 2002

Keywords for *Corrosion Science*



